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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | / CONFIRMATION NO. |
|---|---|---|---|---|
| 09/216,855 | 12/21/1998 | KATSUNORI HIRASE | P7314-8009 | 9061 |

4372 7590 12/08/2003

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| EXAMINER | |
|---|---|
| WONG, ALLEN C | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2613 | |

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/216,855 | HIRASE ET AL. | |
| | Examiner | Art Unit | |
| | Allen Wong | 2613 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-4 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4 and 14* is/are rejected.

7)☒ Claim(s) *2 and 3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 1998* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3,4*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of claims 1-4 and 14 in Paper No. 10 is acknowledged. The restriction is final.

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file as paper no.2.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (6,104,753).

Regarding claim 1, Kim discloses a motion picture decoding apparatus comprising:

a coefficient reducing circuit for removing orthogonal transform coefficients for high horizontal frequencies from a certain sized block of orthogonal transform coefficients obtained from an input signal, thereby reducing the number of transform coefficients to half (fig.19, element 54 and col.13, ln.60-63; note the 8x8 DCT orthogonal transform coefficients are received at VLD 53 and then these 8x8 DCT orthogonal transform coefficients are reduced to half by the 8x4 high frequency horizontal filter 54 by removing the high horizontal frequencies from the 8x8 blocks of orthogonal transform coefficients, thus producing the 8x4 DCT transform coefficients);

an inverse orthogonal transformation circuit for performing an inverse orthogonal transform operation by using the transform coefficients reduced by the coefficient reducing circuit, thereby obtaining, on a block-by-block basis, reconstructed image data or time-axis prediction error data horizontally compressed to ½ (col.13, ln.65-67; fig.19, element 56 is an inverse orthogonal transformation circuit that uses the 8x4 DCT transform coefficients and inversely transform these 8x4 DCT transform coefficients, block-by-block basis, to reconstructed image data or time axis prediction error data);

an adder for generating reconstructed image data horizontally compressed to ½, based on the time-axis prediction error data provided by the inverse orthogonal transformation circuit and on predetermined reference image data (see fig.19 and col.14, ln.11-13, note the adder 58 is used for generating reconstructed image data, as previously horizontally compressed to ½ by element 54 and inversed orthogonal transformed by IDCT 56); and

one or more than one reference image memories for storing reconstructed image data which is included in the reconstructed image data provided by the inverse orthogonal transformation circuit or the adder and is needed for generating the reference image data (fig.19, element 59 and col.14, ln.14-17; after the reconstructed image data has exited the adder 58, the image memory 59 stores the reconstructed image data, where the I, P and B picture types are classified and stored in preparation for retrieval and display).

Regarding claim 14, Kim discloses a motion picture decoding process for decoding a signal compression coded based on the MPEG Standards (col.1, ln.15-18), the process comprising the steps of:

a first step of generating reconstructed image data based on image data obtained through an inverse DCT operation using DCT coefficients, a part of which coefficients has been removed, or on a combination of said obtained image data and reference image data (see fig.19 and col.13, ln.55-67; in preparation of the decoding or reconstructing the image data for display, the image data is inversed discrete cosine transformed at element 56, where a part of the coefficients have been removed at the high frequencies horizontal filter 54);

a second step of committing reconstructed image data to storage at a reference image memory, which reconstructed image data is included in the reconstructed image data provided by the first step and is needed for generating the reference image data (see fig.19 and col.14, ln.14-17; after the reconstructed image data has exited the adder

58, the image memory 59 stores the reconstructed image data, where the I, P and B pictures are classified and stored in preparation for retrieval and display); and

a third step of generating the reference image data based on the reconstructed image data stored in the reference image memory (col.14, ln.17-19; Kim discloses the selection of one of the images of the reference image data stored in memory 59, where one or several I, P and/or B picture types can be selected and generated for display).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (6,104,753).

Regarding claims 2-3, in the background of Kim, Kim discloses the use of the equations F(u,v) and f(i,j) of the inverse orthogonal transformation wherein the limits or values for the summation $\sum$ are set from 0 to 7 for an 8x8 inverse DCT orthogonal operation, and, the limits or values (i, u and j, v, where u is the horizontal frequency and v is the vertical frequency) for the summation $\sum$ are set from 0 to 3 for an 4x4 inverse DCT orthogonal operation, respectively (column 3, lines 5-20). Kim fails to specifically teach, in the equation f(i,j), the limits or values of the summation $\sum$ where the values for u, horizontal frequency, where i, u = 0, 1, 2, (M/2 –1) for claim 2, and i, u = 0, 1, 2, 3, for claim 3.

However, Kim teaches the use of 8 (vertical) x4 (horizontal) IDCT (inverse discrete cosine transform) element 56 in figure 19 for inversely discrete cosine transform 8 (vertical) x4 (horizontal) block. Therefore, it would have been obvious to one of ordinary skill in the art to variate Kim's element 56 of fig.19 to conform the dimensions of the 8 (vertical) x4 (horizontal) block into the equation as shown in Kim's background information (col.3, ln.5-20) to its appropriate limits for evaluating the inverse orthogonal transform or the inverse discrete cosine transform of the 8 (vertical) x4 (horizontal) block so as to reduce errors during the reconstruction and decoding of image data. Moreover, it does not appear to be critical that coefficients are to be of greater accuracy in the vertical or horizontal direction simply because this inverse orthogonal transform operation is based on picture size and orientation.

Regarding claim 4, Kim discloses a motion picture decoding apparatus further comprising a motion compensation circuit for performing a motion compensation operation on image data of a certain size (col.15, ln.66 to col.16, ln.10; Lee's fig.19, element 61 is the motion compensation circuit that can perform a motion compensation operation with a horizontal accuracy of ¼ pel and a vertical accuracy of 1/4 pel; also, col.3, ln.37-50; Kim discloses, for 4x4 region on 8x8 blocks, using half pel resolution motion compensation in horizontal and vertical directions, and quarter pel resolution motion compensation in horizontal and vertical directions) and the image data read from the reference image memory for generation of the reference image data and horizontally compressed to ½ relative to an original picture (fig.19, note the image data can be read from image memory 59 that stores the reference image data that has

already been horizontally compressed to ½ relative to an original picture). Kim does not specifically disclose motion compensation operation on image data of a certain size with a horizontal accuracy of ¼ pel (pixel) and a vertical accuracy of ½ pel (pixel). In other words, Kim fails to teach the use of motion compensating an 8 (vertical) x4 (horizontal) block.

However, Kim teaches the use of 8 (vertical) x4 (horizontal) IDCT (inverse discrete cosine transform) element 56 in figure 19 for inversely discrete cosine transform 8 (vertical) x4 (horizontal) block. Therefore, it would have been obvious to one of ordinary skill in the art to variate Kim's element 56 of fig.19 to conform the dimensions of the 8 (vertical) x4 (horizontal) block into the equation as shown in Kim's background information (col.3, ln.5-20) to its appropriate limits for evaluating the inverse orthogonal transform or the inverse discrete cosine transform of the 8 (vertical) x4 (horizontal) block so as to reduce errors during the reconstruction and decoding of image data. Moreover, it does not appear to be critical that coefficients are to be of greater accuracy in the vertical or horizontal direction simply because this inverse orthogonal transform operation is based on picture size and orientation.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Allen Wong
Examiner
Art Unit 2613

AW
12/1/03